Quentin Moreno-Gelos

Contact Information

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Portfolio LinkedIn GitHub
Address : 427 route de Broche,
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Languages

French :	Native
English :	Fluent
Spanish :	Basic

Technical Skills

Programming Skills :
Python, SQL, Fortran95

Data Analysis Tools :
NumPy, Pandas, Dask

Machine Learning :
Regression, Classification : PySpark, scikit-learn

Visualization Tools :
Dash, Plotly, Matplotlib, Power BI

Communication Tools :
HTML, GitHub, Overleaf

Interpersonal Skills

Analytical Thinking :
Designed models and interpreted datasets for research projects.

Team Collaboration :
Participated in brainstorming sessions with interdisciplinary teams to design experiments.

Communication Skills :
Presented research results at several workshops and international conferences.

Adaptability :
Quickly learned new data analysis and visualization tools.

Project Management :
Managed multiple research projects and met deadlines throughout my career.

Scientific Expertise

- Plasma Instabilities
- Shock Formation
- Laser-Plasma Interaction
- Kinetic Particle-in-Cell Code
- Magnetohydrodynamic Code

Data Scientist

Profile

Physicist transitioning into data science, skilled in data analysis, modeling, and visualization. Proficient in applying machine learning algorithms and statistical methods to extract actionable insights from complex datasets, leveraging a solid background in theoretical physics to solve real-world problems in international research.

Experience

Postdoctoral Researcher — 01/2019–12/2023
ELI-beamlines

◇ Developed 3 self-similar predictive models on shock dynamics in radiative and magnetic plasmas.

◇ Conducted over 50 AMR magnetohydrodynamics simulations on the supercomputer (Sunrise), enhancing the analytical models.

◇ Created data visualization tools for Adaptive Mesh Refinement (AMR) simulations using Matplotlib, significantly enhancing the interpretation of data and the communication of analysis results.

◇ Designed 4 laboratory experiments with over 20 researchers and engineers, where I analyzed over 40 datasets from simulations and diagnostics, thereby guiding strategic decisions.

◇ Presented research findings at three international conferences, including APS, showcasing advancements in the field.

◇ Supervised a first-year Master's student for 3 months, mentoring in research methodologies.

PhD Candidate — 10/2015–12/2018
Centre Lasers Intenses et applications (CELIA)

◇ Designed mathematical models to explore plasma instabilities leading to collisionless shock formation.

◇ Executed over 100 Particle-In-Cell (PIC) simulations on the supercomputer (CINES), refining the analytical models.

◇ Developed data visualization tools for Particle-In-Cell (PIC) simulations using Matplotlib, enhancing data analysis efficiency and facilitating clearer communication of results.

◇ Collaborated with interdisciplinary teams of 10 to 20 people to design 3 laboratory experiments.

◇ Shared research findings at three international conferences, such as HEDLA, highlighting key contributions to the field.

◇ Course examiner at *University of Bordeaux*, gaining teaching experience at undergraduate and master's levels while mentoring students in research methodology.

Publications

◇ A total of 13 publications in peer-reviewed journals focusing on plasma physics (h-index : 8, ResearchGate).

◇ My portfolio features independent data analysis studies, highlighting advanced machine learning techniques to deliver data-driven solutions.

Education

Doctoral degree (PhD) : Bordeaux University — 2015–2018
◇ Thesis Title :
Non-relativistic collisionless shocks in laboratory astrophysics.

Master's degree : Bordeaux University — 2013–2015
◇ Astrophysics, Statistical physics, Computer Science